



United States Environmental Protection Agency
Office of Enforcement and Compliance Assurance
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National Enforcement Investigations Center

NEIC

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CLEAN AIR ACT 112(r) COMPLIANCE INVESTIGATION

Clean Harbors Environmental Services, Inc.

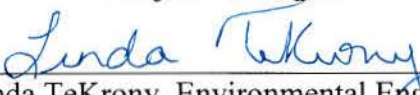
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NEIC Project No.: VP1031

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APPENDICES

A	NEIC Photographs (3 pages)
B	Process Description (11 pages) Contains CBI
C	2003, 2006, 2009, and 2012 Compliance Audit Reports (68 pages) Contains CBI
D	PSM Vessel and Equipment List (8 pages)
E	Piping Diagram of Ultrasonic Testing Location For Tanks 360 and 361 (1 page)
F	General Facility Piping Specifications (55 pages) Contains CBI
G	November 2009 Process Hazard Analysis Revalidation (27 pages) Contains CBI
H	2010 Incidents (129 pages) Contains CBI
I	2011 Incidents (157 pages) Contains CBI
J	2012 Incidents (125 pages) Contains CBI
K	2013 Incidents (107 pages) Contain CBI
L	October 29 and 30, 2013, Daily Chemical Inventories (50 pages)
M	Emergency Action Plan (59 pages)
N	Incident and Investigations Policy (28 pages) Contains CBI
O	Aerosol Can Receipts from October 2013 through April 2014 (4 pages)

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and provides a clear indication of the end of this report.**

INTRODUCTION

U.S. Environmental Protection Agency (EPA) Region 7 requested EPA's National Enforcement Investigations Center (NEIC) to conduct a Clean Air Act Section 112(r) Risk Management Program (RMP) compliance investigation of the Clean Harbors Environmental Services, Inc. (CHESI) hazardous waste incinerator in Kimball, Nebraska. NEIC conducted an on-site inspection of CHESI from October 28 through 31, 2013.

NEIC investigated CHESI's compliance with specific elements of the Risk Management Program requirements under Clean Air Act Section 112(r). During the on-site inspection, NEIC presented credentials to Jessica Grow, compliance manager for CHESI, and Michael Crisenbery, vice president of environmental compliance for Clean Harbors Corporate. **Appendix A** contains photographs collected during the NEIC on-site inspection.

FACILITY BACKGROUND

CHESI has been in operation since 1995. The Kimball facility consists of an incinerator, with associated waste storage in tanks and containers, waste consolidation, and waste transfer operations on a 640-acre site. Typical waste streams handled at the facility include: contaminated process wastewaters, soils, solids, residues from the chemical process industry, oil, spent flammable solvents, paint residues, and chemical spill clean-up material. The fluidized bed incinerator has a feed capacity of approximately 18,000 pounds per hour. Ash from the incinerator is treated on-site, delisted as hazardous waste, and then disposed of in an on-site monofill, a landfill designed for only one type of waste. The facility has the storage capacity for 60,500 gallons of non-bulk containerized wastes, 240,000 gallons of bulked liquids, 8,724 tons of bulk container storage, and 750 cubic yards of bulked solids. **Appendix B** is a process description that summarizes CHESI's general waste approvals; waste acceptance, receiving, and tracking; and five processes (tank farm, direct feed system, shredder building, dry solids, and wet solids).

REGULATORY SUMMARY

CHESI's operations and associated waste streams are subject to major environmental statutes, including the Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA); Clean Air Act (CAA); Emergency Planning and Community Right-to-Know Act (EPCRA); and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Its operations also are subject to environmental permits and regulations administered by the EPA and the Nebraska Department of Environmental Quality (NDEQ). CHESI included one process unit (hazardous waste treatment) in its current risk management plan, submitted to the EPA on March 10, 2010. The hazardous waste treatment process unit is composed of five processes (tank farm, direct feed system, shredder building, dry solids, and wet

solids) that are covered by the Occupational Safety and Health Administration's (OSHA's) Process Safety Management (PSM) program. Toxic and flammable chemicals are contained within the process unit operated on-site.

INSPECTION SUMMARY

During the on-site inspection, CHESI representatives provided the following: a general driving tour, process descriptions, process area walk-throughs, and documentation/records pertaining to the CAA 112(r) investigation. NEIC evaluated the company's compliance with the following RMP requirements:

- Hazard assessment
- Program 3 Prevention Program
 - Process safety information
 - Process hazard analysis
 - Operating procedures
 - Training
 - Mechanical integrity
 - Management of change
 - Pre-startup review
 - Compliance audits
 - Incident investigations
 - Employee participation
 - Hot work permit
 - Contractors

An exit conference between regulatory and facility personnel was conducted at the conclusion of the on-site inspection. NEIC inspectors stressed that final determinations would be made in conjunction with EPA Region 7 personnel.

SITE OBSERVATIONS

NEIC discussed the various elements of CHESI's risk management program with on-site and corporate personnel. NEIC also reviewed documentation provided by the facility in response to the supplied document request list.

Owners and operators of a facility (stationary source) that manufactures, uses, stores, or otherwise handles more than a threshold quantity of a listed regulated substance (i.e., RMP threshold quantities for regulated chemicals) in a process must implement a risk management

program and submit a single plan for all covered processes at the facility. Tier II reports (or Emergency and Hazardous Chemical Inventory Forms) provide information about the types, quantities, and locations of hazardous chemicals at the facility, as well as the facility's designated emergency point-of-contact. CHESI's Tier II reports list hazardous chemicals that are brought on-site and used as raw materials; they do not include chemicals contained in the waste brought on-site for treatment. CHESI's current emergency coordinator on-site is Kevin Wayne. He was designated the emergency coordinator in June 2013.

CHESI had no reportable accidental releases of regulated substances during the 5-year accident history covered in its risk management plan (2010, 2011, 2012, or 2013).

CHESI must investigate each incident which resulted in, or could reasonably have resulted in, a catastrophic release of a regulated substance. The immediate supervisor of the CHESI employee identifying an incident initiates the incident investigation within 24 hours. The supervisor conducts witness interviews and prepares the initial incident report by filling out CHESI form HS1.25. This form is sent to the investigation team if any follow-up investigation is needed. The investigation team meeting is intended to determine: root causes, obvious causes, underlying causes, corrective actions, responsible manager, and target date for implementing corrective actions. Management may accept or reject the recommended corrective actions or may decide to further investigate the incident. The recommended correction action is transferred to a corrective action plan and tracked in a database.

Emergency response is documented in the on-site contingency plan. Every operator is part of the emergency response team, and has attended 40-hour hazardous waste operations and emergency response (HAZWOPER) training. Emergency coordinators attend annual emergency coordinator training, as well as National Incident Management System training. CHESI conducts monthly 1-hour training on topics associated with on-site safety.

CHESI does not have a written emergency response agreement with the local responders, which consists of a volunteer fire department. The facility does conduct an annual walk-through of the facility with local responders. Kevin Sherman, CHESI health and safety manager, is the chairman of the local emergency planning committee.

NEIC discussed the mechanical integrity program with CHESI, which included a written procedure and tracking systems. The integrity testing results for tanks and valves are tracked in an electronic database called Map Con. Integrity testing results for piping is tracked in a Microsoft Excel® spreadsheet. The inspection schedule and results that would indicate a deficiency are also listed in the Map Con database and Excel spreadsheet. NEIC reviewed tank thickness results for tanks in areas 70 and 50, and observed the use of Map Con for tracking two of these tanks (T-320 and 360).

SUMMARY OF FINDINGS

NEIC identified the following CAA 112(r) areas of noncompliance and areas of concern from on-site inspection observations, discussions with CHESI personnel, and a review of records and documentation. These findings are summarized in the table below. Specific supporting documents are linked to the findings and can be found in individual appendices to this report. The findings are categorized as potential areas of noncompliance (AON) and as areas of concern (AOC). Areas of concern are inspection observations of potential problems or activities that could impact the environment or result in future or current noncompliance. EPA Region 7 will assess the applicability of regulatory requirements based on its review of this report and other technical, regulatory, and facility information.

#	Regulatory Citation	Findings/Observations	Supporting Documents
POTENTIAL AREAS OF NONCOMPLIANCE			
1	40 Code of Federal Regulations (CFR) § 68.65(d) – (1) Information pertaining to the equipment in the process shall include: ... (ii) Piping and instrument diagrams (P&ID's) ... (2) The owner or operator shall document that equipment complies with recognized and generally accepted good engineering practices.	<p>CHESI has not created a complete equipment list with respective Recognized and Generally Accepted Good Engineering Practices (RAGAGEP).</p> <p>CHESI conducted a compliance audit from March 27 through 29, 2012, and an equipment list was not available. The 2009 and 2012 compliance audits' corrective action plan tables noted a completed date of May 18, 2012 (No. KP12-01 on page 6 and No. KP09-16 on page 12 of Appendix C). May 18, 2012, is after the March 2012 compliance audit date. Additionally, this issue was still unresolved at the time of the NEIC inspection on October 28, 2013. Although CHESI has an equipment list for all the vessels and instruments (Appendix D), it still has not created a list of all the piping and the applicable requirements. NEIC interviewed CHESI employee Rick Olsen, who is responsible for performing mechanical integrity inspections. NEIC had R. Olsen walk through a thickness check for piping associated with tank 360. R. Olsen uses a piping diagram for each tank to determine the piping locations to be measured for thickness with ultrasonic equipment (Appendix E). No specific RAGAGEP requirements were documented on the piping diagram. The piping thickness readings are tracked in a database and checked against a pre-determined minimum thickness requirement; however, CHESI personnel could not provide NEIC with the RAGAGEP requirements, or risk-based standards, that were used to establish the minimum thickness values used in the database. CHESI did provide a process and piping specification document that outlined the RAGAGEP requirements that applied to different types of equipment used on-site (Appendix F). Unfortunately, CHESI does not have a consolidated identification list of each pipe run on-site and the applicable</p>	<p>Appendix C – 2003, 2006, 2009, and 2012 Compliance Audit Reports</p> <p>Appendix D – PSM Vessel and Equipment List</p> <p>Appendix E – Piping Diagram of Ultrasonic Testing Location For Tanks 360 and 361</p> <p>Appendix F – General Facility Piping Specifications</p>

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		inspection requirements to ensure appropriate management of this equipment.	
2	CFR § 68.79(a) – <i>The owner or operator shall certify that they have evaluated compliance with the provisions of this subpart at least every three years...</i>	CHESI did not sign the 2012 compliance audit, and the 2009 compliance audit was not signed until 3 years later, in 2012 (Appendix C).	Appendix C – 2003, 2006, 2009, and 2012 Compliance Audit Reports
3	40 CFR § 68.79(d) – <i>The owner or operator shall promptly determine and document an appropriate response to each of the findings of the compliance audit, and document that deficiencies have been corrected.</i>	<p>CHESI did not promptly address two findings from the 2009 and 2012 compliance audits.</p> <p>CHESI conducted compliance audits in 2009 and 2012 (Appendix C). The following findings from the 2009 compliance audit were also findings in the 2012 compliance audit, and were still a concern during the NEIC investigation.</p> <ol style="list-style-type: none"> CHESI has not created an equipment list with respective Recognized and Generally Accepted Good Engineering Practices and inspection details for easy access. This equipment document was not available during the March 27 through 29, 2012, compliance audit. The 2009 and 2012 compliance audits corrective action plan tables noted a completed date of May 18, 2012 (No. KP12-01 on page 6 and No. KP09-16 on page 12 of Appendix C). May 18, 2012, is after the March 2012 compliance audit date. Additionally, this issue was still unresolved at the time of the NEIC inspection on October 28, 2013. Although CHESI has an equipment list for all the vessels and instruments (Appendix D), it still has not created a list of all the piping and the applicable requirements. CHESI has not ensured timely closure of all audit findings, nor ensured they are actually closed and implemented appropriately prior to closing them on the audit corrective action plans. Review of compliance audits from 2003, 2006, 2009, and 2012 revealed that some findings were not completed before the next audit, and, in some cases, they were marked with a completed date on the audit corrective action plans before they had been fully completed (No. KP12-01 on page 6 and No. KP09-16 on page 12; finding for standard 1910.119(o) on page 31 and KP-06-28 [PSMREC-03-04] on page 35; and No. PSMREC-03-02 on page 63 of Appendix C). 	<p>Appendix C – 2003, 2006, 2009, and 2012 Compliance Audit Reports</p> <p>Appendix D – PSM Vessel and Equipment List</p>
4	40 CFR § 68.81(e) – <i>The owner or operator shall establish a system to promptly address and resolve the incident report findings and recommendations. Recommendations and corrective actions shall be documented.</i>	<p>Fires continue to occur in the dual stack shredder, even though shredder fires have been identified during the process hazard analysis and during various incident investigations.</p> <p>The process hazard analysis (PHA) revalidation conducted in November 2009 (Appendix G) identified at least six fires that occurred in the building 55 shredder system. In five of the incidents, the corrective action was to notify the generator of the waste involved in the fire. Generators are responsible for providing waste profiles to CHESI. The facility uses the information on the waste profile to determine proper handling and treatment of the waste.</p>	<p>Appendix G – November 2009 Process Hazard Analysis Revalidation</p> <p>Appendix H – 2010 Incidents</p> <p>Appendix I – 2011 Incidents</p>

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		<p>Review of provided incident reports show that fires have continued to occur in building 55, either in the shredder or in the hoppers following the shredder, over the last 4 years: three incidents in 2010 (Appendix H), seven incidents in 2011(Appendix I), five incidents in 2012 (Appendix J), and three incidents in 2013 (Appendix K). CHESI installed a new dual stack shredder in building 55, which began operating in November 2012. This new shredder is nitrogen blanketed down to an oxygen concentration of 5 percent, which has reduced the number of fires in the shredder but not in the hoppers following the shredder.</p> <p>For the majority of the fire incidents that occurred in building 55 over the last 4 years, CHESI has recommended that waste profile sheets be reviewed. At times, this review included determining if the specific waste profile had been involved in previous similar incidents. CHESI has not been able to implement a process to prevent the fires from occurring in building 55. Instead, the process used by CHESI is reactive, and only after an incident occurs does CHESI identify those waste profiles that should not be handled on-site.</p> <p>Six of the fire incidents occurred when household hazardous waste was being processed. Further investigation and additional recommendations need to be undertaken to address how best to pack and handle household hazardous waste at CHESI.</p>	<p>Appendix J – 2012 Incidents</p> <p>Appendix K – 2013 Incidents</p>
5	<p>40 CFR § 68.67(f) – <i>At least every five (5) years after the completion of the initial process hazard analysis, the process hazard analysis shall be updated by a team meeting the requirements in paragraph (d) of this section, to assure that the process hazard analysis is consistent with the current process.</i></p> <p>40 CFR § 68.67(a) - <i>The owner or operator shall perform an initial process hazard analysis (hazard evaluation) on processes covered by this part.</i></p>	<p>The 2009 PHA revalidation did not address issues from past PHA recommendations, and should have been conducted as an initial PHA instead of a revalidation. Fires continue to occur in the dual stack shredder, even though shredder fires were identified prior to the 2009 PHA and during various incident investigations.</p> <p>Section 5.2 of the building 55 section of the 2009 PHA revalidation (Appendix G, Section 5.2) summarizes the status of past PHA recommendations. Section 5.5 (incident investigations) of the 2009 PHA revalidation reports 60 fires or reactions in the building 55 shredder or hopper from 2005 through 2009. Of these 60 incidents, the corrective action column lists “none” or “cause not determined” 25 times. Of the incidents that listed a corrective action, 25 were related to insufficient or incorrect information on the waste profile.</p> <p>Review of provided incident reports shows that fires have continued to occur in building 55, either in the shredder or in the hoppers following the shredder, over the last 4 years: three incidents in 2010 (Appendix H), seven incidents in 2011(Appendix I), five incidents in 2012 (Appendix J), and three incidents in 2013 (Appendix K). CHESI installed a new dual stack shredder in building 55, which began operating in November 2012. This new shredder is nitrogen</p>	<p>Appendix G – November 2009 Process Hazard Analysis Revalidation</p> <p>Appendix H – 2010 Incidents</p> <p>Appendix I – 2011 Incidents</p> <p>Appendix J – 2012 Incidents</p> <p>Appendix K – 2013 Incidents</p>

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		blanketed down to an oxygen concentration of 5 percent, which has reduced the number of fires in the shredder but not in the hoppers following the shredder.	
6	40 CFR § 68.200 – <i>The owner or operator shall maintain records supporting the implementation of this part for five years.</i>	<p>CHESI does not maintain all records supporting implementation of the risk management program.</p> <p>Kevin Sherman, CHESI health and safety manager, stated that a pre-startup safety review had been completed for the dual stack shredder project. K. Sherman was able to locate a handwritten list of tasks to be completed before start-up, but this list did not include any completion dates. No documentation was provided to NEIC showing that the list of tasks were completed and verified before the dual stack shredder process began operation.</p>	
7	40 CFR § 68.190(b) – <i>The owner or operator of a stationary source shall revise and update the RMP submitted under §68.150 as follows: (1) At least every five years from the date of its initial submissions...</i>	<p>CHESI did not update the information contained in its March 2010 risk management plan submittal from the 2009 risk management plan, which had been unsuccessfully submitted.</p> <p>CHESI attempted to submit a risk management plan update in 2009 through EPA's Central Data Exchange (CDX). CHESI personnel did not realize the submittal was unsuccessful until they received a letter from EPA Region 7 saying the risk management plan was late and requesting a penalty. When CHESI personnel submitted the plan in March 2010 in response to the EPA Region 7 letter, they did not update the information found in the unsuccessfully submitted 2009 plan, and merely re-submitted the 2009 plan in March 2010.</p> <p>New information was available between the two dates, such as incidents that occurred in the first few months of 2010 (Appendix H).</p>	Appendix H – 2010 Incidents
AREAS OF CONCERN			
A		<p>CHESI's operating system automatically calculates daily RMP threshold quantities for regulated chemicals contained on-site, including those handled in the hazardous waste storage building. CHESI does not maintain documentation showing this daily report is completed or that none of the threshold quantities for the chemicals were exceeded.</p> <p>A daily email report is generated using information from the corporate-wide electronic database and tracking system called the waste information network web (WIN-web) system (waste profiles and on-site inventory) that summarizes any reportable chemical that is located on-site above the threshold quantities. This daily report is emailed to the on-site compliance manager.</p> <p>The CHESI compliance manager reviews the daily email report and verifies the accuracy of the calculated threshold quantities and any exemptions that may apply. The daily report includes all wastes containing RMP-reportable</p>	Appendix L – October 29 and 30, 2013, Daily Chemical Inventories

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		<p>chemicals, even when those reportable chemicals are contained in a mixture. A hands-on review is necessary to determine if the reportable chemical is contained in the mixture in a concentration greater than 1 percent, and if the mixture would be considered a National Fire Protection Association (NFPA) 4 material with a flash point below 73 degrees Fahrenheit (°F). The daily report is completed on a facility-wide basis, and the compliance manager must determine where the material is stored on-site. The hazardous waste building is divided into three rooms that are separated by fire walls. CHESI considers each of these rooms a separate process when determining whether a threshold for a listed chemical has been exceeded. CHESI does not maintain the original daily report email or the compliance manager's verification documentation.</p> <p>NEIC received two daily reports (October 29 and 30, 2013) during the on-site inspection (Appendix L). The following reportable chemicals appear as over the threshold quantity: n-butane (both days), methyl ether (October 29 only), and ethyl ether (both days). On both days, n-butane was below the threshold quantity, but anticipated waste receipts show that material containing n-butane was due at the facility, which would put the on-site quantity over the threshold. Methyl ether and ethyl ether were both contained in mixtures that had flash points higher the 73 °F, so these chemicals were not covered by the RMP.</p> <p>Mike Crisenberg, vice president of environmental compliance, stated that if CHESI were to determine that the facility had a threshold quantity of a covered chemical on-site that was not listed in the facility's risk management plan, they would update the plan at that point. If a threshold quantity is exceeded, the chemical should have been listed on the risk management plan prior to exceeding the threshold.</p>	
B		<p>CHESI's emergency action plan lists the incorrect facility compliance manager.</p> <p>Danielle Reader is listed as the facility compliance manager in the emergency action plan. The emergency action plan was updated in June 2013 with the new emergency coordinator; however, the facility compliance manager was not updated. Jessica Grow, the current facility compliance manager, has been working in this capacity for approximately a year.</p>	Appendix M – Emergency Action Plan
C	40 CFR § 68.81(b) – <i>An incident investigation shall be initiated as promptly as possible, but not later than 48 hours following the incident.</i>	<p>CHESI's "Incident Reporting and Investigations Policy" does not contain timeframes required for initiating incident investigations.</p> <p>CHESI's "Incident Reporting and Investigations Policy" (Appendix N) does not include a requirement that incident investigations are begun within 48 hours following the incident. Kevin Sherman, health and safety manager, stated that the supervisor's investigation of an incident is begun within 24 hours, but this</p>	Appendix N – Incident Reporting and Investigations Policy

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		statement is not documented in the investigations policy. Form HS1.25, attached to the "Incident Reporting and Investigations Policy," is used to document incident investigations. There is no place on the form to document when the incident investigation was begun. Facility personnel unfamiliar with the RMP requirements will not be informed about incident investigation initial timeframes when reading the "Safety Incident Reporting & Investigation Requirements" procedure.	
D		<p>CHESI accepts aerosol cans for handling and has not listed propane on the risk management plan. Non-empty aerosol cans can contain propane in varying amounts.</p> <p>CHESI accepts both punctured and non-punctured aerosol cans for handling at the facility. Punctured aerosol cans are shredded and fed to the incinerator. Non-punctured aerosol cans are stored on-site and then shipped off-site for additional handling. CHESI provided NEIC a list of non-punctured aerosol can receipts for the past 6 months (Appendix O). At the beginning of October 2013, approximately 2,575 pounds of aerosol cans were on-site. Assuming 0.25 pounds per can, this equals approximately 10,300 aerosol cans. NEIC has no information regarding how much propane is contained in a non-punctured aerosol can, but there is a potential that CHESI could have enough non-punctured aerosol cans on-site at any one time to exceed the threshold quantity of propane. If the threshold quantity is exceeded, propane should be listed on the risk management plan prior to exceeding the threshold.</p>	Appendix O – Aerosol Can Receipts from October 2013 through April 2014